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APPLICATION NO.	FILING DATE	FIRST-NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,015	02/16/2001	Frank Nico Lieven Op'T Eynde	Q62388	1583

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EXAMINER

PAREKH, NITIN

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 07/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/784,015

Applicant(s)

Eyende et al

Examiner

Nitin Parekh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 19, 2002
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of:

- 1) ☒ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
- 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5, 12-15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshi (Japanese Pat. 09237867, IDS paper #3).

Regarding claims 1-3, 5, 12-15 and 26, Takeshi discloses a packaged integrated circuit (PIC) device/module comprising:

- a radio frequency (RF)/high frequency component/device included in an IC die (ICD-9 in

Fig. 3) characterized in that RF antenna (RFA-3 in Fig. 3) is also included in the PIC, and

- the RFA being excluded/separated from the ICD and is formed/constituted by a planar metal object/pattern (see English Translation: MEANS, section 0024, pp. 2 of 2)

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separated from by ground/shield metal planes (5, 12, etc. in Fig. 3; see English Translation: MEANS, section 0012, 0014, 0016, etc.; pp. 1 of 2) by an insulating/dielectric layers such as a ceramic (2 in Fig. 3; see English Translation: MEANS, section 0024, etc.; pp. 2 of 2) which is a part of the ICP, and - the RFA being coupled/connected to the ICD using wire bonding and metal wiring planes routed through the ground/shield planes (section 0019) (Fig. 3 and 1; pp. 1-5; see English Translation of various sections including Detailed description, Means and Technique, etc.).

Takeshi further discloses the PIC being equipped with the RFA (see Abstract, line 1).

Therefore, it would have been obvious to a person of ordinary skill in the art to realize that at the RFA comprises a portion/part of the Takeshi's packaged integrated circuit.

3. Claims 4, 9-11 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshi (Japanese Pat. 09237867, IDS paper #3) in view of Masahito (Japanese Pat. 08250913, IDS paper #3), Koichi (Japanese Pat. 63181505, IDS paper #3), Houghton et al (US Pat. 6282095), Moskowitz et al (US Pat. 5528222) and Mussler (US Pat. 4733245).

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Regarding claims 4 and 9-11, 21-25, Takeshi discloses the PIC having a mold cavity (8 in Fig. 3) but fails to specify the RFA is disposed on a metal lead frame and PIC being a ball grid array (BGA), quad flat pack (QFP) or small outline package (SOP) respectively and encapsulating the shield and the die.

Masahito teaches forming/disposing a RFA on a conventional metal lead frame/terminal (203 in Fig. 13; Detailed Description pp. 1).

Houghton et al teach using conventional packaging technologies such as a BGA, SOP, peripheral QFP, etc. in a RF module (Col. 5, line 15-25).

Moskowitz et al teaches using conventional encapsulation sealing an entire RF package (Fig. 1A/1B) to provide added protection.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to dispose a RFA on a metal lead frame and an encapsulated PIC being a ball grid array (BGA), quad flat pack (QFP) or small outline package (SOP) so that a range of external connection capabilities can be configured using Masahito, Houghton et al and Moskowitz et al structures in Takeshi's RF package.

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4. Claims 6-8 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshi (Japanese Pat. 09237867, IDS paper #3) in view of Koichi (Japanese Pat. 63181505, IDS paper #3) and Yoshitaka (Japanese Pat. 6085530, IDS paper #3).

Regarding claims 6-8 and 16-18, as explained above for claims 5 and 15, Takeshi fails to specify forming the RFA using a metal slot pattern consisting of a first S-shaped slot or a first slot and a second S-shaped slot which is rotated 90 degrees with respect to the first one.

It is conventional in a high frequency RF devices to form RFA using a metal slot pattern in various shapes, configurations and dimensions.

Koichi (Fig. 2; pp. 1-4) and Yoshitaka (Fig. 1; pp. 1-6) teach forming a RFA having slot patterns including S-shaped slot and strip-line configuration respectively with predetermined dimensions to achieve the desired resonance frequency/impedance characteristics.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate a RFA using a metal slot pattern consisting of a first S-shaped slot or a first slot and a second S-shaped slot which is rotated 90 degrees with respect to the first one so that the desired resonance

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frequency/impedance characteristics can be achieved and the transmission signal can be improved using Koichi and Yoshitaka's RFA design in Takeshi's RF package.

Regarding claim 19, Takeshi further discloses the RFA/package comprising conventional vias (14, 15, etc. in Fig. 3 and 1) around the periphery of the RFA.

Claim 20 do not distinguish over Takeshi regardless of the process for operating the RFA, because only the final product is relevant, not the process of making such as "being differentially excited or high/constant frequency modulated". Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marrosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear. See also MPEP 706.03(e).

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Response to Arguments

5. Applicant's arguments filed on 03-19-02 have been fully considered but they are not persuasive.

A. Applicant contends that Takeshi does not disclose the RFA being a portion of the package.

However, as explained above, Takeshi discloses the integrated circuit package being equipped with the RFA (see Abstract: Problem to be solved, lines 1-4) and therefore, the RFA is portion/part of the package.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Papers related to this application may be submitted directly to Art Unit 2811 by facsimile transmission. Papers should be faxed to Art Unit via Technology Center 2800 fax center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Parekh whose telephone number in (703) 305-3410. The examiner can be normally reached on Monday-Friday from 08:30 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached on (703) 308-2772. The fax number for the organization where this application or proceeding is assigned is (703) 308-7722 or 7724.

Nitin Parekh

07-09-02

Steven Loke
Primary Examiner

